

# (12) UK Patent Application (19) GB (11) 2 161 222A

(43) Application published 8 Jan 1986

(21) Application No 8516196

(22) Date of filing 26 Jun 1985

(30) Priority data

(31) 8410297 (32) 29 Jun 1984 (33) FR

(51) INT CL<sup>4</sup>  
F04B 15/02

(52) Domestic classification  
F1W 100 106 220 CX  
U1S 1378 1456 F1W

(56) Documents cited  
None

(58) Field of search  
F1R  
F1W

(71) Applicant  
Aerosol Inventions & Development SA AIDSA  
(Switzerland),  
1 Rue de Fries, CH-1700 Fribourg, Switzerland

(72) Inventors  
Andre Debard,  
Gunter Melchior Vogel

(74) Agent and/or address for service  
Barker Brettell & Duncan, 138 Hagley Road, Edgbaston,  
Birmingham B16 9PW

(54) Arrangement for adding a stripe to a dispensed pasty material

(57) A dispenser comprises at least one reservoir chamber 3—5, 4—6 (Figs. 2, 6) for the pasty material to be added as a stripe, leading through outlets 7, 8 into a nozzle 1 and communicating with the principal paste under pressure at a point opposite the outlets 7, 8. The reservoir chambers 3—5, 4—6 are formed by the combination of a rigid cap 9 incorporating the nozzle 1, and a flexible dome 10 fitting over the end wall of the container 2 and incorporating the flaps 11, 12 of flap-type non-return valves which control movement of the principal paste into the reservoir chambers 3—5, 4—6 to force the added pasty material to the outlet 7, 8 simultaneously with the formation of the principal ribbon of paste. The seating 13, 14 (Fig. 5) of the valve is incorporated in the end wall 15 of the container 2. The flexible dome 10 encloses at the same time the base of the nozzle 1 to isolate it from the reservoir chambers 3—5, 4—6 whilst allowing the passage of the principal paste from an opening 16 in the end wall to the nozzle 1.

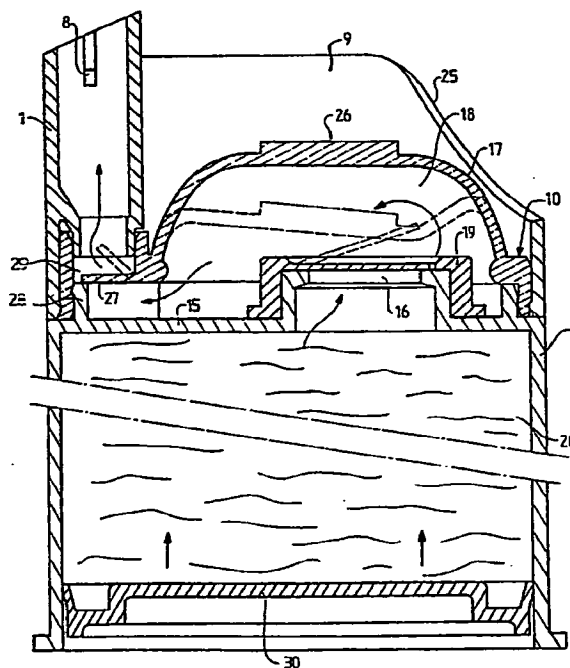
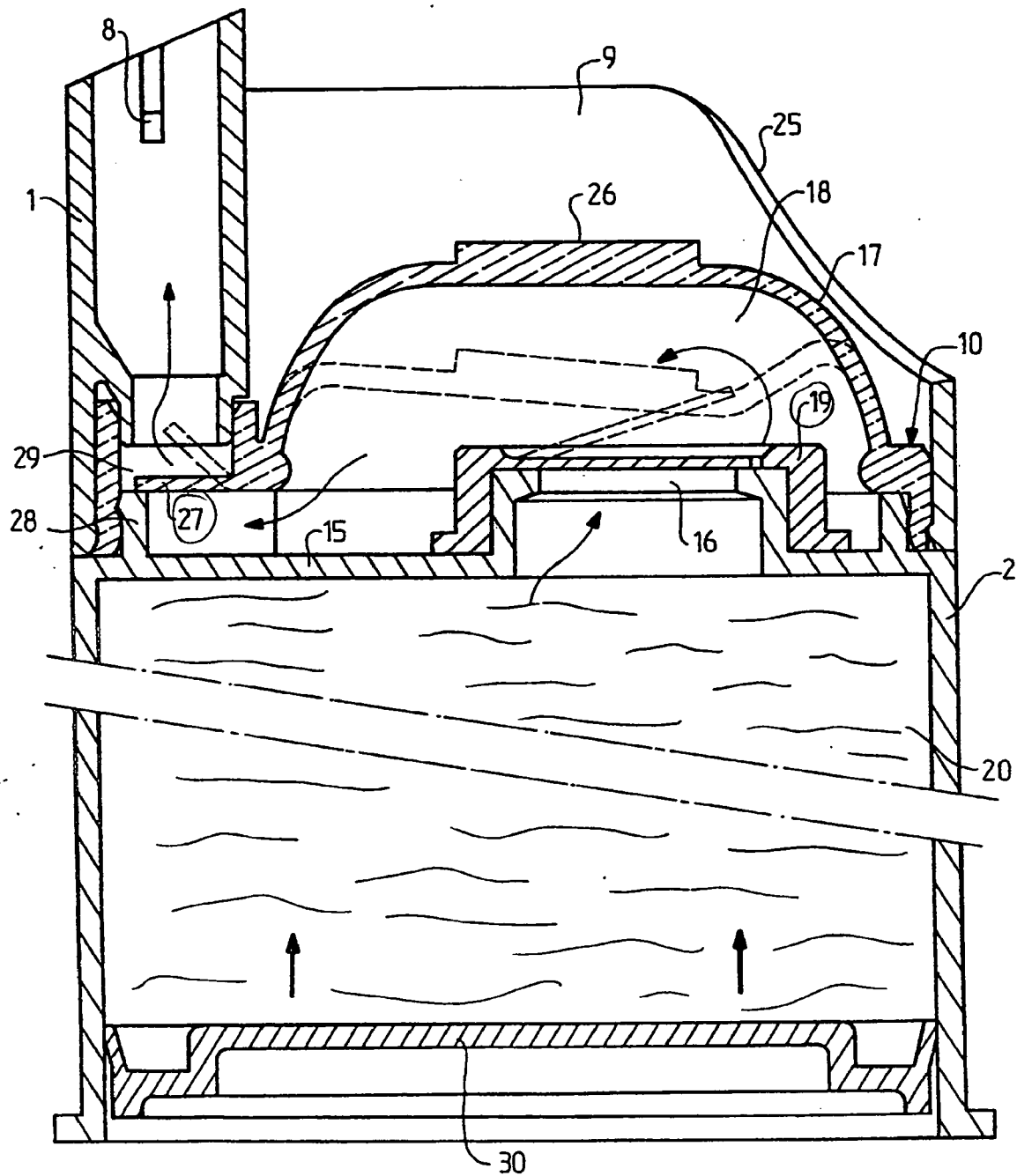


FIG -1

GB 2 161 222 A

1/4

FIG -1

2/4

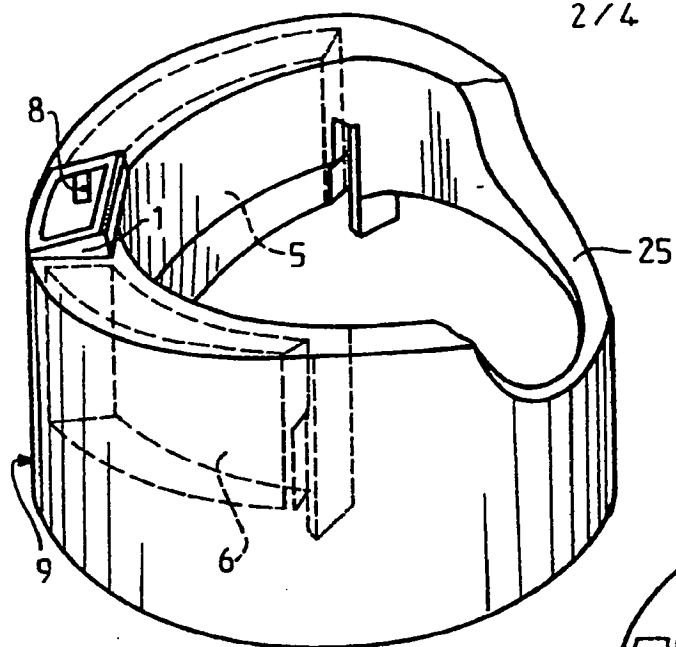


FIG -2

FIG -3

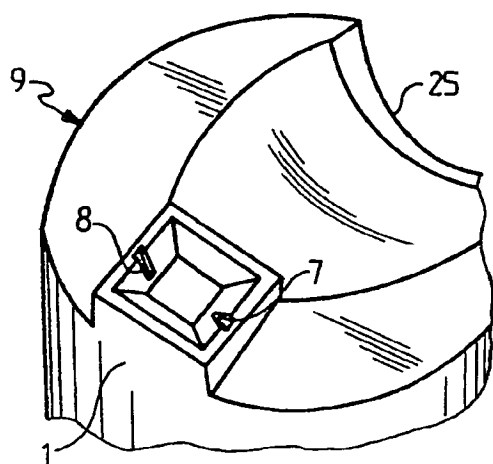
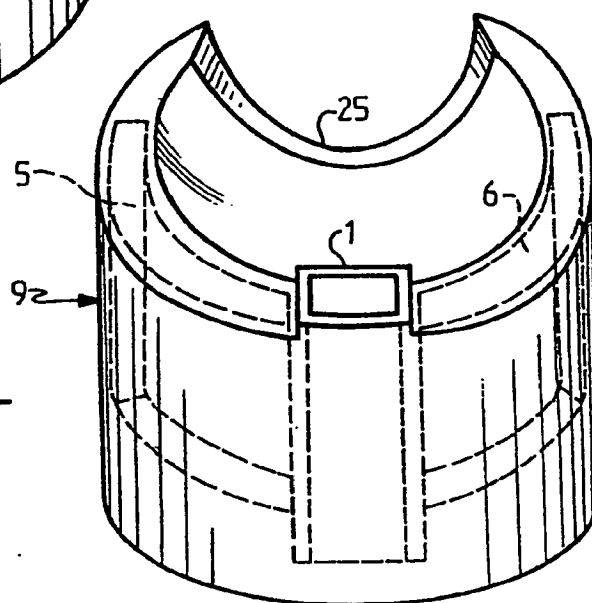


FIG -4

3/4

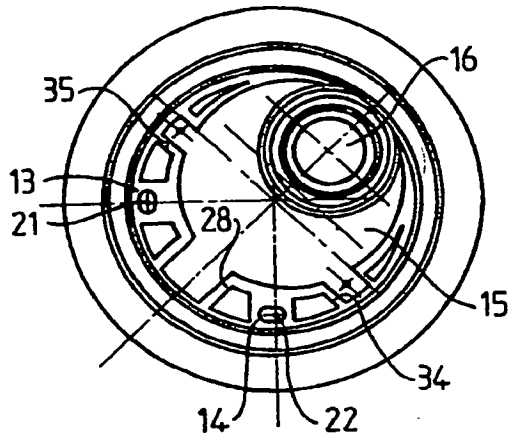


FIG-5

FIG-6

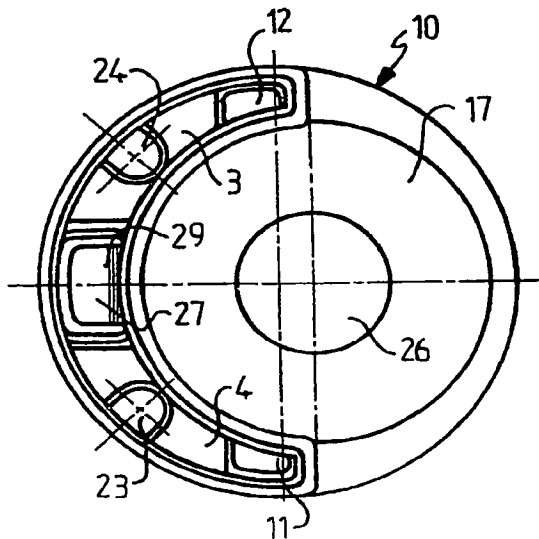
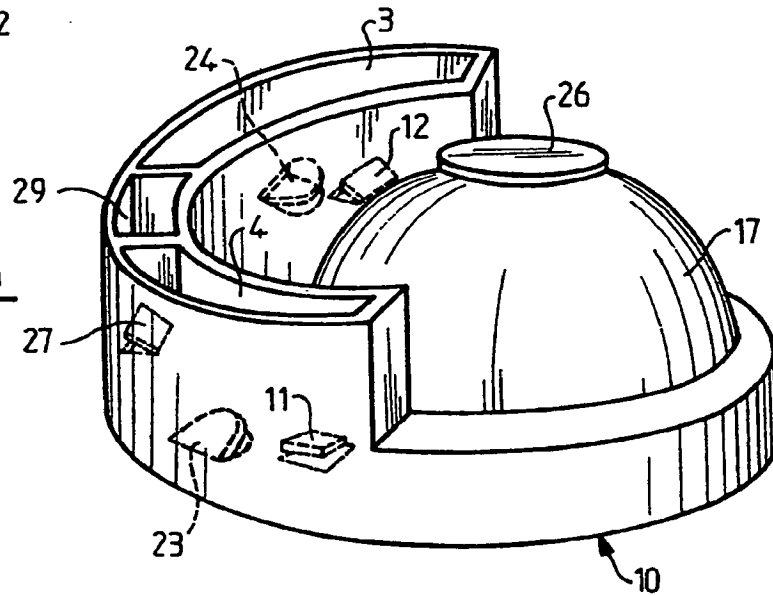


FIG-7

4/4

FIG - 8

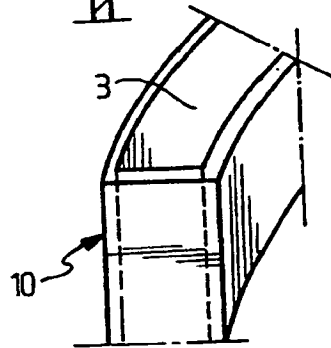
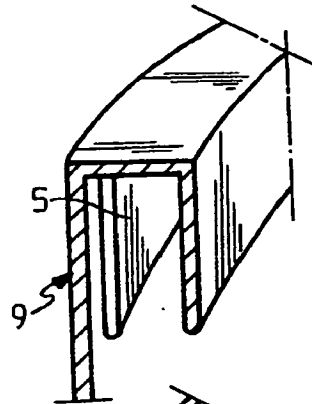
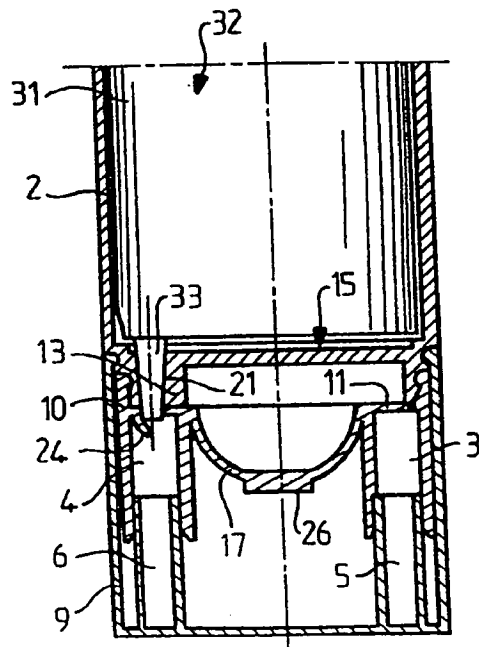


FIG - 9



## SPECIFICATION

## Arrangement for Adding a Stripe to a Dispensed Pasty Material

The present invention relates to an arrangement providing for "striping", that is to say adding one or more lateral stripes of pasty material to a principal ribbon of paste, in particular toothpaste.

Such a striping is often used for applying to a ribbon of paste an external decoration, generally of a colour which is different from that of the principal paste, with the aim of creating an attractive and decorative effect, or to effect instantaneous mixing of the two materials at the outlet from the tube or other container.

Striping has been employed for a number of years on pastes which are enclosed in manually deformable tubes, in particular toothpaste tubes.

However, the current tendency is not to sell pastes in flexible tubes which have the drawback of an unaesthetic appearance as their contents are used up, and thus an absence of stability, but on the contrary to market the paste in dispensers in the form of a rigid cylindrical container, closed at the top by a pumping arrangement which dispenses the paste in doses at each action of the finger of the user.

Such dispensers do not allow the use of conventional striping arrangements, as there is no direct access from the interior of the container to the dispensing nozzle for injecting the striping material at that point.

The aim of the invention is to provide a structure for striping which is adaptable to paste dispensers of the manual pumping type.

According to the invention an arrangement for adding a lateral strip of an auxiliary pasty material to a principal ribbon of paste emerging from the dispensing nozzle of a manually pumped dispensing container, and comprising at least one reservoir chamber for the pasty material to be added, leading through an outlet into the internal wall of the nozzle, near where the principal ribbon of paste emerges, and communicating with the principal paste under pressure, at a point away the outlet, is distinguished by the features that the additive chamber is formed by the combination of a rigid cap incorporating the dispensing nozzle and a flexible dome which closes off an end wall of the container and incorporating at least one flap of the non-return valve controlling the delivery of the principal paste under pressure into the chamber to force the added material through the outlet, simultaneously with the formation of the principal ribbon of paste, the seating for the valve being incorporated in the end wall of the container, and the flexible dome at the same time closing the base of the nozzle to isolate it from the reservoir chamber whilst allowing the principal paste to pass from an opening in the end of the container to the dispensing nozzle.

In such an arrangement, the flexible dome could comprise a bulb forming, together with the end wall of the container, a manually elastically deformable pumping chamber for sucking up the principal paste from the container through an orifice pierced in the

end wall of the container and capped by a non-return valve, and delivering it to the dispensing nozzle and also to the reservoir chamber to displace the material that is to form the stripe.

According to one embodiment, the end wall of the container has in it at least one hole communicating, under the control of a non-return flap valve, with the interior of the reservoir chamber for the purpose of charging the chamber initially with the additive material via the interior of the container.

In one practical embodiment, the flap of the non-return valve for the above-mentioned charging hole is incorporated in the flexible dome and its seating is formed by the end wall of the end of the container of the container around the hole.

In one preferred construction there are two crescent-shaped reservoir chambers for the added material disposed one on each side of the dispensing nozzle and extending around an offset bulb in the form of a cupola, in a rigid cylindrical cap which has a notch in its periphery for access by the finger of the user to the crown of the bulb.

In addition to all its other functions, the above-mentioned flexible dome could also incorporate at least one flap-type non-return valve controlling the flow of the principal paste towards the nozzle, the seating of the valve being constituted by a part of the end wall of the container.

The invention will be better understood by reading the following detailed description and examining the accompanying drawings which illustrate, by way of example, one embodiment of the invention.

In the drawings:

Figure 1 is a diagrammatic view, taken in axial section, of a paste dispenser fitted with a striping arrangement according to the invention,

Figures 2 and 3 are two perspective views of the cap of the structure of Figure 1,

Figure 4 is a view of a detail of the cap of Figures 2 and 3,

Figure 5 is a view of the end wall of the dispensing container of Figure 1 from above,

Figure 6 is a diagrammatic perspective view of the flexible dome of the dispenser of Figure 1,

Figure 7 is a diagrammatic view of the dome of Figure 6 from above,

Figure 8 is a partially sectioned illustration showing the assembly of the cap and the dome to form the chambers for the added pasty material, and,

Figure 9 is a diagrammatic sectional view illustrating the charging of the chambers with the pasty material.

The paste dispenser illustrated in Figure 1 is made up essentially of a cylindrical container 2 with a mainly closed upper end wall, and in the interior of which slides a free piston 30. It contains the principal paste 20 which is to be dispensed. The upper end wall 15 of the container is pierced by a main orifice 16 for passage of the paste 20. This orifice 16 is capped by a non-return flap valve 19 which leads into a pumping chamber 18 defined by a flexible dome 10 of which one part 17 constitutes an elastic bulb in the form of a dome of which the

crown 26 has a thickened platform for engagement by a user's finger.

The flexible dome 10 at the same time has a spigot 29 extending parallel to the axis of the bulb 17 and having a lower end wall in which is cut a valve 27 forming a non-return valve in co-operation with an extension 28 of the end wall 15 of the container 2. On each side of the spigot 29 there are crescent-shaped cavities 3 and 4, in the otherwise closed bottom walls of which are cut valve flaps 23 and 24 co-operating with seatings 13 and 14 in extensions of the end wall 15 of the container to form non-return valves. The seatings surround holes 21, 22 pierced through the end wall 15 of the container. Other non-return valve flaps 11, 12, likewise cut in the bottom walls of the cavities 3 and 4 ensure unidirectional communication with the pumping chamber 18. They engage the seatings 34, 35 on the end wall of the container. The cap 9 is of annular cylindrical shape and has a notch 25 allowing access for the finger of the user to the reinforced crown 26 of the bulb 17, for dispensing the paste. An off-centre tubular dispensing nozzle 1 extends through the cap 9 to engage the spigot 29. Two crescent-shaped cavities 5 and 6 are provided, one on each side of the nozzle 8 in alignment, with the cavities 3 and 4 of the flexible dome 10, in which they come to nest to define the two reservoir chambers 3—4, 5—6, for the pasty material 31 which is to be added as stripes.

The chambers 3—4 and 5—6 each lead through a respective opening 8, 7 into the nozzle 1 on one side or the other near its free end. The additive pasty material 31 is charged into the chambers with the aid of a syringe which is placed at 32 and ends in a pair of nozzles 33; these project through the orifices 21, 22 in the end wall 15 of the container to open the non-return valves 23, 24 and fill the chambers 3—5, 4—6 with the pasty material 31 which is to form the stripes. The container 2 is then filled with the principal paste 20 and is closed by means of the free piston 30.

When a user presses down on the bulb 17, as indicated in broken lines in Figure 1, the principal paste 20 which has been sucked into the pumping chamber 18 by the elastic return of the bulb 17 to its former shape, is forced into the nozzle 1, lifting the valve flap 27, but at the same time some of the paste is forced into each of the chambers 3—5, 4—6, lifting the valve flaps 11, 12, and displaces the additive pasty material 31 through the openings 7 and 8 so that it comes to form diametrically opposed stripes, one on each side of the ribbon of principal paste emerging from the nozzle.

## 55 CLAIMS

1. An arrangement for adding at least one lateral stripe of auxiliary pasty material to a principal ribbon of paste emerging from the dispensing nozzle of a manually pumped dispensing container,

60 and comprising at least one reservoir chamber for the pasty material to be added, leading through an outlet into the internal wall of the nozzle near where the principal ribbon of paste emerges, and communicating with the principal paste under pressure at a point away from the outlet, in which the reservoir chamber is formed by the combination of a rigid cap incorporating the dispensing nozzle and a flexible dome which closes off an end wall of the container and incorporating the flap of at least one flap-type non-return controlling the passage of the principal paste under pressure into the reservoir chamber to force the added pasty material through the outlet simultaneously with the formation of the principal ribbon of paste, the seating of the valve being incorporated in the end wall of the container and the flexible dome at the same time closing the base of the nozzle to isolate it from the reservoir chamber whilst allowing for the passage of the principal paste from an opening in the end wall of the container to the dispensing nozzle.

2. An arrangement according to claim 1, in which the flexible dome comprises a bulb forming, together with the end wall of the container, a manually deformable elastic pumping chamber for sucking up the principal paste from the container through an orifice in the end wall of the container capped by a non-return valve, and feeding it to the nozzle and to the reservoir chamber.

3. An arrangement according to claim 2, in which the base of the container is pierced by at least one hole communicating, under the control of a non-return valve, with the interior of the reservoir chamber for initially charging it with the additive paste material through the interior of the container.

4. An arrangement according to claim 3, in which the non-return valve is a flap valve with the flap incorporated in the flexible dome and its seating formed in the end wall of the container around the hole.

5. An arrangement according to any one of claims 2 to 4, in which there are two of the said reservoir chambers for the additive pasty material, disposed in the form of crescents one on each side of the dispensing nozzle, around the dome which is mounted off centre in a cylindrical cap which has a notch for access by the finger of the user to the dome.

6. An arrangement according to any one of claims 2 to 5, in which the flexible dome also incorporates the flap of a non-return flap valve controlling the passage of the principal paste towards the dispensing nozzle, the seating for the flap being constituted by a part of the end wall of the container.

7. An arrangement for adding at least one stripe of auxiliary pasty material to a principal ribbon of paste emerging from the dispensing nozzle of a manually pumped dispensing container, substantially as described with reference to the accompanying drawings.